DATAMATION 84

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THE GRAPHICS STANDARDS BATTLE

ALSO
BUSINESS GRAPHICS ON MICROS AND MAINFRAMES
DO MARKET RESEARCHERS READ TEA LEAVES?

DATAMATION.

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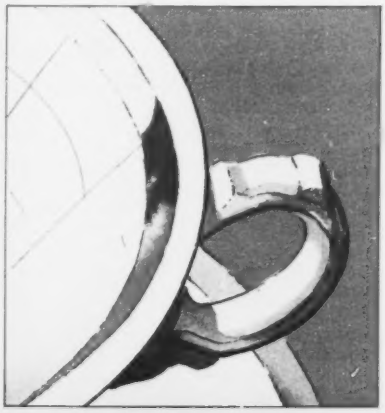

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COVER ILLUSTRATION BY ED SOYKA

With mainframe graphics, the corporate database makes sure your pictures are up-to-date.

MAINFRAME BUSINESS GRAPHICS

by Maxine D. Brown

Almost everything about the business graphics picture is glowing. A compound annual growth rate of between 40% and 65% is predicted for the rest of the decade. Vendors display an array of hardware—printers, plotters, film recorders, terminals—that offers choices of monochrome or color, high resolution or low, vector or raster displays, softcopy or hardcopy. Software comes standalone, integrated, application oriented, or as a subroutine library.

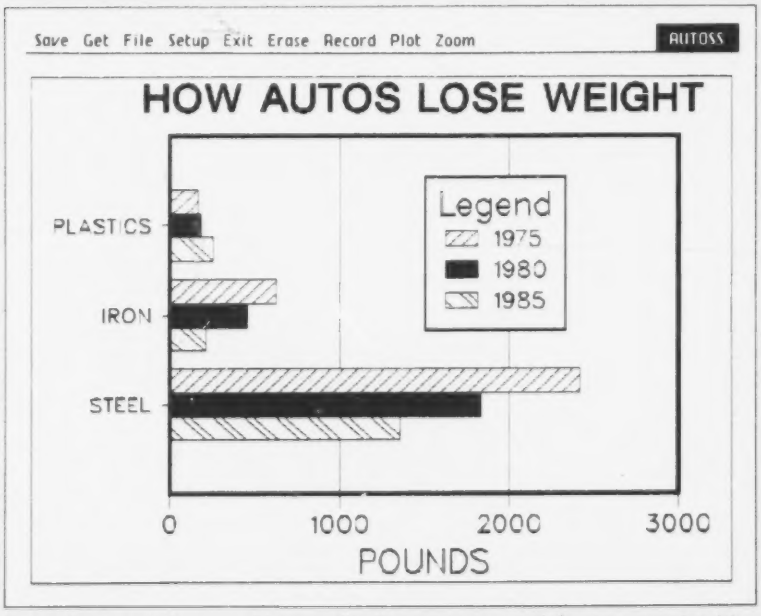
These business graphics have made presentations more convincing, publications clearer and more readable, and analysis and decision-making faster and more accurate. The power of visual communications to increase productivity has delighted the business market. But the variety of graphics schemes available has also led to confusion.

How can you make sure you've got your company's business graphics needs in focus?

If business graphics is a new application you're considering, you're probably wondering whether to start small and expand in-house capabilities as the demand grows, or to invest in a comprehensive software system that encourages new users and new application areas. Despite a somewhat higher initial cost, mainframe graphics produces a savings in operation, support, and labor, and allows for ease of expansion and growth. A comprehensive software system can easily be integrated with existing databases and application programs, can produce charts and diagrams of graphic art quality, interface with a variety of devices, and generate high volume in short time periods in a production environment. Let's explore some of these key

FIG. 1

MAINFRAME TO PC



If you have existing graphics applications on your mainframe, you should be able to continue to use them on your personal computer. Mesa Graphics' Tekalike is a graphics terminal communication package that enables you to connect your personal computer to a mainframe. Tekalike supports the Tektronix 401X graphics protocol for graphics terminal input and output, making it compatible with virtually every mainframe graphics software package that supports the Tektronix 401X family. This chart was produced on a mainframe and then, using Tekalike, displayed on an Apple Lisa desktop computer. The output is a screen dump to a dot matrix printer.

Courtesy of Mesa Graphics

"Many users don't want the wealth of functionality available in the graphics package. They just want to get their pictures."

mainframe graphics features in more detail.

A friend once quipped, "What's a story without a plot?" He meant plot to be synonymous with graph, or chart, and his pun spelled out the need to integrate graphic illustrations with text.

The converse is also true: what's a plot without a story? Here, story refers to information, or data. A plot without data is absurd, but that is the situation that results when database management systems and graphics packages cannot communicate.

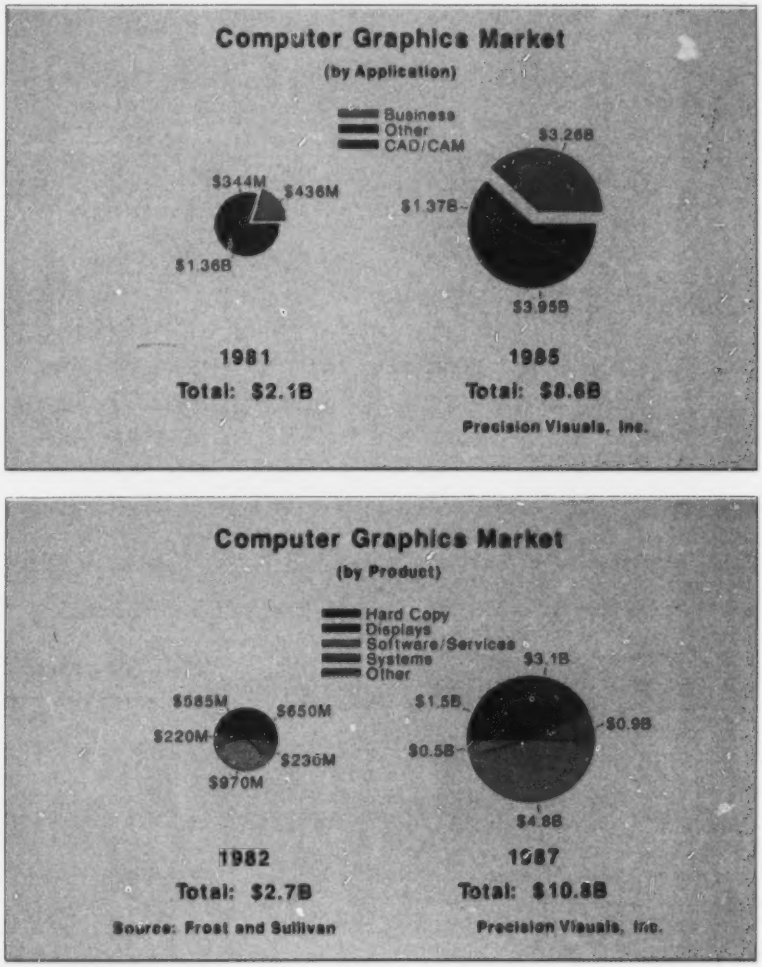
Jim George, president of Mesa Graphics, a Los Alamos-based firm specializing in computer graphics, comments, "A major problem facing business graphics is the automatic entry of data from applications (e.g., databases, spreadsheets) into graphics products. Also, when it's been accomplished once, it should be easily repeatable at periodic intervals."

To have a graph, you have to have data. You can either type data at the keyboard or, if you have access to huge databases managed and manipulated by a variety of DBMS's and data processing application programs, you should be able to integrate the data with the graphics. If the DBMS has hooks that allow you to embed programs, then graphics subroutine libraries can be used to construct specific chart types that can then be integrated into the application program. Standalone graphics packages, which have broad end-user appeal and encourage easy modifications to chart formats, now include features for reading DBMS or report files, so the output of one automatically becomes input to the other.

Besides allowing easy access to data, keeping the graphics with the data management routines is advantageous for reasons of security and control. The data always stay in one place.

FIG. 2

A MAINFRAME DESCRIBES THE MARKET



Device-independent output from Precision Visuals' Grafmaster package, a menu-based system that runs on DEC computers. Grafmaster's menu panels are formatted display screens that permit the user to create, modify, or delete a graph's pictorial elements; to specify the data to be displayed; and to display the picture on a selected output device.

Courtesy of Precision Visuals, Inc.

GRAPHIC ART QUALITY

Until four years ago, computer graphics was to traditionally generated graphics as computerese is to English: it wasn't very good. But no one seemed to mind. Engineers and scientists were the major users of computer graphics, and they were more concerned with the efficient visual representation of their data than with aesthetic appearance.

But four years ago IBM announced a color graphics terminal, and graphics suddenly became respectable. During the following couple of years, the new business user community that bought the IBM machines began to demand better quality graphics. What was good enough for an engineer or a scientist was not good enough for the chairman of the board. Complaints came from corporate art departments where graphics designers found themselves redrawing computer-generated charts and graphs.

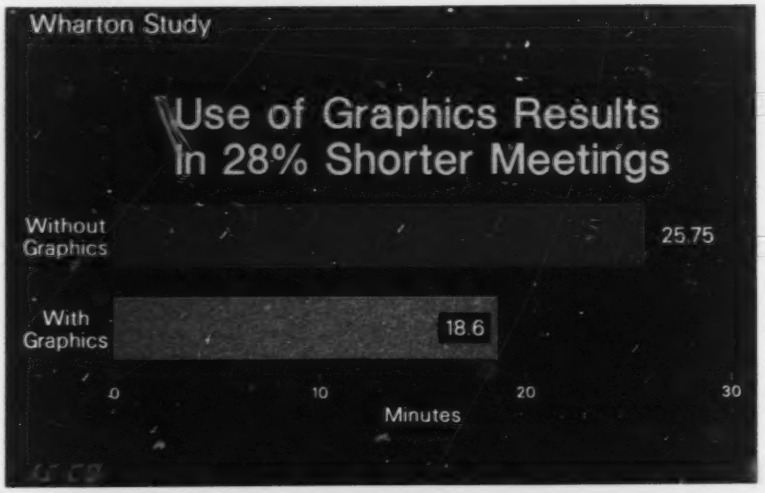
"Quality graphics in the business environment is crucial," observes Jim George. "The aim of business support graphics is to understand the data and influence decisions. Influencing decisions requires communicating the analysis in graphic form to peers and bosses. As in most personal interactions, an unkempt appearance, personally or with graphics, is hard to overcome."

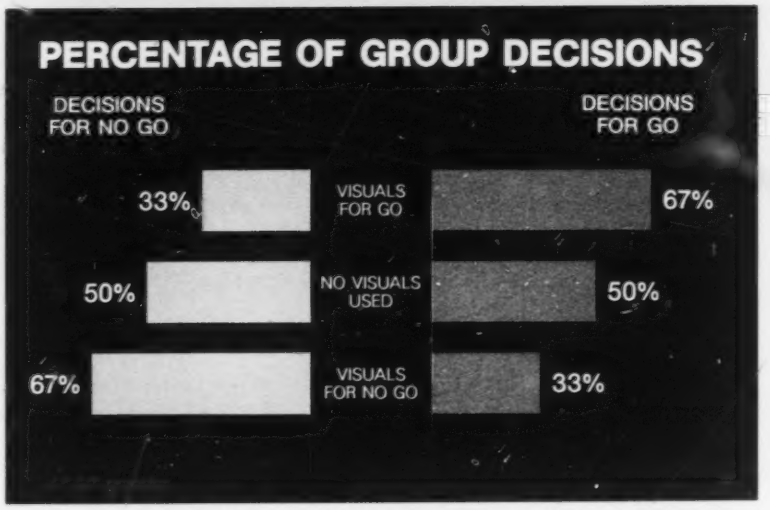
Today's variety of equipment, cost/performance trade-offs, and applications needs have created three levels of quality: presentation, peer, and personal.

In presentation graphics, the aesthetics are as important as the information being displayed. Illustrations are usually prepared for upper management, the board of directors, or stockholders. Image quality affects the way the information is received and the way the speaker is perceived by the audience. The more effort put into the preparation of presentation materials, the more persuasive

FIG. 3

DO GRAPHICS WORK?





In a study of the effectiveness of business meetings, conducted in early 1982 by the Wharton Applied Research Center of the Wharton School, University of Pennsylvania, under a grant from the Audio Visual Divison of 3M, the use of visual aids (specifically the overhead projector) was shown to significantly influence the actual decisions reached, how the presenter of information was perceived by meeting participants, and whether or not the meeting leader could quickly reach a consensus. In the test situation, those using visual aids won their points 67% of the time, were perceived as more professional by group members, and achieved consensus in a 28% shorter meeting time.

Courtesy of ISSCO

the presentation.

Peer graphics is charts and diagrams one shows to colleagues or subordinates. The output quality is of some consideration, but more important is the clear visual representation of information.

Personal, or throwaway, graphics are those generated for personal use in analysis and decision-making. Plots are quick and dirty, and a soft screen copy is often all that's generated. The emphasis is on data representation, not quality.

Flexible software permits a variety of different charting options. For example, large companies establish design standards and corporate grids, color, and logos that they want to be able to recreate using a graphics software package. A flexible system also permits a variety of chart types, trial and error designs, random placements, multiple charts per page, and batch or interactive execution. Designers and end users can create charts and graphs to their specifications. End users can produce the best charts possible for maximum communication.

The term user friendly (AKA ease of use) is overused and misused. User-friendly software needs a simple test: try it! See if you like it! Have it demonstrated by salespeople; have your secretaries, graphic artists, technicians, and staff play with it; get testimonials from other customers; talk to friends in related industries and see what they use.

"I see two classes of business graphics users," comments Jim Warner, president of Precision Visuals, Boulder, Colo. "The first group is the layout builders charged with preparing general or specific graph layouts for an organization. The next class of users are analysts, managers, scientists, or clerical people who want to use layouts, plug in their data, and get a picture. They don't want the wealth of functionality available in the graphics package. They just want to get their pictures," he says.

"Stencil designers have traditionally worked with pencil and paper to design the layout of a page, the placement of a graph, or the position of titles and labels," continues Warner. "They must have the same flexibility when using a computer, and it's the software manufacturer's responsibility to give the user control over the computer, instead of letting it control him. Many people want to add simple embellishments to their graphs, such as shrinking the drawing area or moving the text 'a little to the left.' Using an electronic pencil, which comes in the guise of a mouse, joystick, or tablet, the designer can simply define new locations by pointing."

Various ways that end users specify graph choices include menus, from which choices are made; tables, where users enter values in formatted fields; prompting systems, which repeatedly ask questions and list all available options; or command-driven systems, which require that you know the command syntax. Chart books are also popular; end users either receive predefined graph formats from the software supplier or customize their own.

One other aspect of user friendliness is documentation. A user manual is the only tangible aspect of software you can evaluate without access to the system. Is it clear, concise, and comprehensive? Is it interesting, illustrated, and well organized?

User friendliness can have its unfriendly side. More and more unsophisticated users can take advantage of in-house graphics capabilities once user-friendly ones become available. Graphics software, per se, doesn't saturate a system, but increased usage might. Also, the more users, the more questions that arise on software capabilities and system operation. Before long, an in-house support person becomes necessary to supervise equipment acquisitions, integrations, and

In large corporations, the host computer has become the repository for data and graphics.

software usage. You might find yourself shopping for another computer to support all this increased activity.

DEVICE INDEPENDENCE

The ability to interface to any graphics device is called device independence. It is a distinguishing characteristic of mainframe graphics. Mainframes can interface to $2,000 personal computers or $350,000 film recorders, to desktop pen plotters or six-foot flatbed plotters, to dot-matrix printers or $500,000 photocomposition laser machines.

Device independence not only means the software can talk to a variety of peripherals, it also means the software can talk to any make or model of graphics equipment. Graphics packages can be interfaced to current, in-house devices, to new acquisitions, and to next year's technology, as well.

Graphics applications can grow as your needs and applications increase. The same software package can plot on low-cost peripherals and high-performance devices. If user needs switch from presentation slides to typeset publication material, the graphics are adaptable and system modifications are transparent. Device independence also describes software that supports all graphics hardware devices.

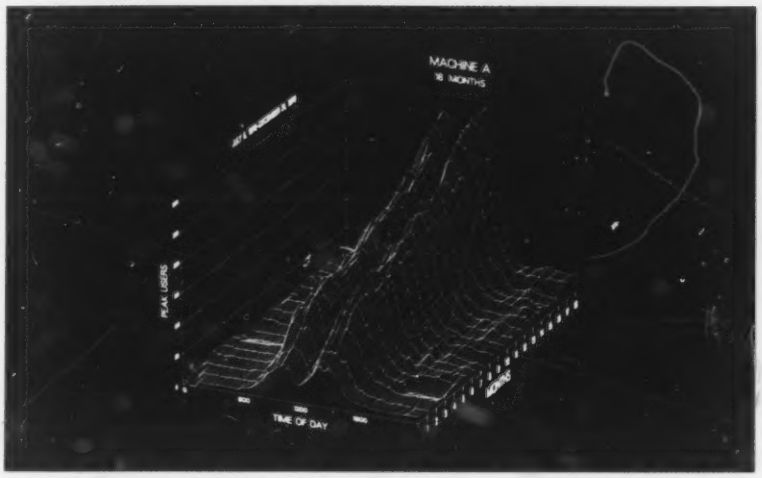
The next generation of software that came along adapted to the peculiarities of output devices. Anders Vinberg, vice president of research at ISSCO, San Diego, coined the phrase "device intelligent" to describe software that takes advantage of local device performance capabilities, such as polygon fill, hardware characters, segmentation, and variable drawing speeds. The software utilizes these capabilities to perform tasks whenever possible. Device-intelligent software reduces demand on the resources of the host computer and communication links, which reduces computer time and expense.

Device intelligence resulted in faster drawing speeds, but wasn't enough to achieve graphic design quality. "Layout intelligence," ISSCO's current generation software, modifies the layout of the graph to fit the characteristics of the output medium. The software understands the application and helps the end user make the graph that's needed.

For example, a chart to be published in a book may be oriented vertically, contain lots of text, and require black-and-white shade patterns to distinguish the various datasets plotted. A similar chart, to appear on a slide, needs to be oriented horizontally, contain minimal text, and have solid colored areas in lieu of shade patterns for distinguishing data. Layout-intelligent software adapts the graph to the situation; it worries about page orientation, annotation style and size, and dataset identification.

FIG. 4

A PICTURE OF POPULARITY AND LUNCH



This 3-D graph effectively displays the number of people accessing machine A at different times of the day over an 18-month period. We see heavy user loads in midmorning and midafternoon. The surface depression at noon portrays what happens at lunchtime. The surface mounds increase over time, reflecting an increase in the number of users.

Courtesy of ISSCO

Mainframe graphics software should not only be able to talk to a variety of devices, but it should also be able to run on a variety of host computers. Whole organizations are then free to standardize on one software package. Systems support knowledge and user programs are portable throughout the company.

These software advances mean that, today, graphics is becoming commonplace. It probably won't be long before we run production graphs every weekend for Monday morning distribution.

Advertisements no longer feature people looking with smug satisfaction at a plot they've just produced. As Anders Vinberg observes, "Graphics is no longer the front line of technology. It's production work. People are beginning to think in terms of throwaway graphics."

"Mainframes have the data, the horsepower for high volume and fast turnaround, and the interfaces to high-performance film recorders and laser printers," Vinberg continues. "Production graphics is a new phenomenon. Only recently have manufacturers developed graphics interfaces for high-speed, on-demand production laser printers."

Vinberg asserts that the graphics community has to pay attention to what's happening in the computer industry, and adapt accordingly. "Graphics is only as valuable as the data it portrays. The end user is only interested in getting his information across."

ISSCO views its layout intelligence feature as the cornerstone of production graphics. End users can produce report illustrations and presentation slides by changing two commands in the company's Tell-a-Graph package: one command changes the output device specification, and the other enables automatic layout changes. It's impractical to reformat charts every time the device changes. Mainframe power and intelligence make it possible to do things automatically.

SUPPORT, MAINTAIN, TRAIN

As a rule, mainframe software suppliers pay strict attention to the quality of their customer relations. There is concern for providing adequate product installation, support, maintenance, and on-site training. There is also a feeling of responsibility on the part of the software supplier to keep abreast of the latest technological developments, in both hardware and software, and to keep customers informed of new device interfaces and up-to-date product enhancements. After all, current customers account for a large percentage of future sales.

either by repeat purchases or by referrals.

The role of the personal computer in corporate graphics is limited. There are many applications where standalone personal computers are extremely helpful. "The personal computer is just another tool, as is the hand-held calculator," observes Jim George. "The personal computer's role is that of a talented specialist. It can help you with reports, papers, or memos by providing word processing; it can provide help with accounting; it can help with financial planning through the use of spreadsheets; it can help with project planning; it can create graphics to illustrate ideas."

Buyers, however, should not confuse the low cost and varied functions of personal computers with corporate application needs. If you need to support a number of end users, provide quality results, and access extensive data files, mainframes may actually be cheaper. Personal computers allow one user at a time; mainframes more. Personal computers are more appropriate for one-time jobs; mainframes are suited for production work. It's also worth noting that mainframe costs are continually dropping while memory and speed are increasing, making them more economical and more practical than ever.

In large corporations, the host computer has become the repository for data and graphics. The personal computer functions as a front-end terminal and receives tabular data from the mainframe for graphic display. Results can be plotted on local devices or queued for production on high-performance peripherals.

George's company, Mesa Graphics, is involved in the development of graphic communication packages that enable mainframes and personal computers to communicate. The Tekalike package makes personal computers Tektronix-compatible. Since most mainframe software packages interface to Tektronix devices, the Tekalike interface encourages graphics communication between the two systems.

Both ISSCO and Precision Visuals have demonstrated the capability of downloading mainframe graphics to small computer systems. This migration will continue as next-generation micros using more powerful microprocessors reach the market. Powerful micros are a prerequisite for ISSCO. "We will not compromise on quality or intelligence," states Vinberg, "because we know our customers want it." Warner adds, "It's obvious that the distinction among mainframe, mini, and microcomputers is becoming blurred. A 'personal mainframe' is imminent. As such, the concept of 'mainframe-based business graphics packages' will soon collapse to 'business graphics packages.' "

Computer graphics is quickly becoming an integral part of office automation technology. "Within the next 10 years," observes George, "end-user computer equipment will not be offered without graphics. Applications will assume graphics, and graphics will take its place among the existing tools of business. Business graphics will disappear as a separate entity; it will be an option in every application, business or otherwise." ❁

Maxine D. Brown is an independent consultant, specializing in technical communications for the computer graphics industry. She is secretary of SIGGRAPH, a national computer graphics professional society.

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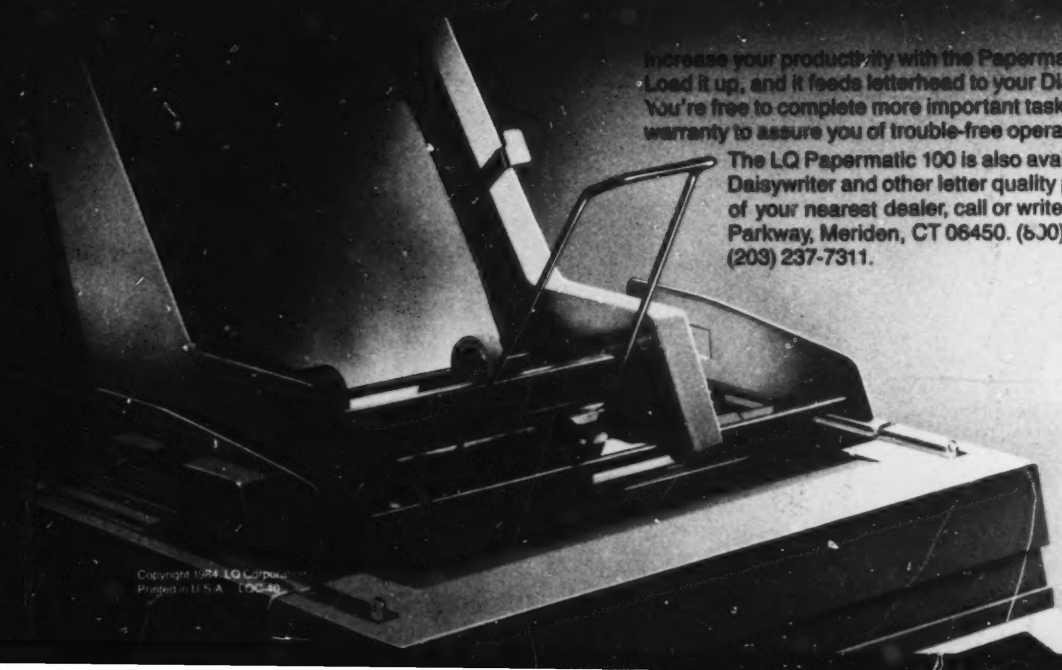

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Demand continues to detonate for one of the dp industry's most explosive fields.

EUROPEAN MICRO MOVES

by Paul Tate

It is 11 years now since the world's first microcomputer—the Micral from French company R2E—was launched onto an unsuspecting and unresponsive European market. Much has changed since then. European users have in fact bought almost as many business microcomputers in the 17 months since IBM debuted its Personal Computer in Europe as they have in the previous 9½ years.

At the beginning of this year, 1.1 million business micros were installed in Europe, according to the latest Telematica European market survey compiled by Logica in the U.K. That represented an increase of 52% over 1983. Such explosive growth is expected to continue, with the number of business micros predicted to pass the 1.6 million mark before the end of 1984, reaching 6.3 million by 1990.

The fact that prices in Europe are generally 10% higher than in the U.S. has not deterred would-be users. Indeed, last year some $1.7 million worth of micros were shipped in Europe. Not only are European users buying more, they are also becoming more discriminating in what they buy, and from whom. "Customers are less forgiving now," notes David Broad, chairman of the British Microcomputer Manufacturers Group. They demand more rounded products and better service."

Keith Teare, manager of the Greater Manchester Microsystems Center, which gives advice to novice U.K. users, adds: "The people who see us are looking for permanence. They want a system that will do what the vendor says it will do and a supplier that will be around in six months' time."

So far micros are being used extensively by smaller firms in Europe. The machine population in larger corporations, however, is still patchy. This is partly because managers in some large European companies are more reluctant to buy their own systems from petty cash. It's also due to the fact that many large companies want to be able to plan the introduction of micros into their organizations before signing bulk orders.

In some cases, large companies have tried to ease this introductory process by deliberately encouraging staffers to learn about microcomputers. Other incentive schemes have also been tried. The large Norwegian insurance group Vesta-Hygea, for example, will pick up part of the cost if an employee buys a home computer.

It is not that European companies have necessarily been slow to take the micro plunge. It's more that they are looking at the micro more cautiously, considering it one element in their overall data processing strategy. Louis Nardon, dp manager at French oil company Elf Aquitaine, is one exponent of this approach. "The micro is something that will be used across the company, but it must be used well, otherwise it is not economical."

Nardon has formulated a number of basic rules for the way micros are introduced into Elf Aquitaine. "First, in a large company where there are already numerous dp systems and large databases, micros must be able to access the major systems. Communications is of the essence. Second, executives do not need to become computer scientists—and especially not programmers. We only supply them with equipment if suitable software products are already available."

Nardon's comments underscore two main trends in the European micro market for large organizations—communications facilities to allow that all-important micro-to-mainframe link and centralized purchasing of and control over the micro.

While these trends are apparent elsewhere in the world, in Europe they are often the starting point for large companies that want to avoid the spread of incompatible micros. At the end of last year, over 70% of large European companies had already formalized central evaluation and selection procedures for micros, Logica reports. About 40% of the firms surveyed had also compiled lists of approved micros—lists that would help overcome the incompatibility problem.

This compatibility concern is especially strong in Germany, where users take the introduction of micros even more seriously. In fact, the number of German companies with lists of approved machines was as high as 50%. That doesn't mean that everybody abides by the rules. Some user departments have indeed gone their own way with micros. One constant problem for Pierre Sarremejean, OA manager of the French building and

FIG. 1

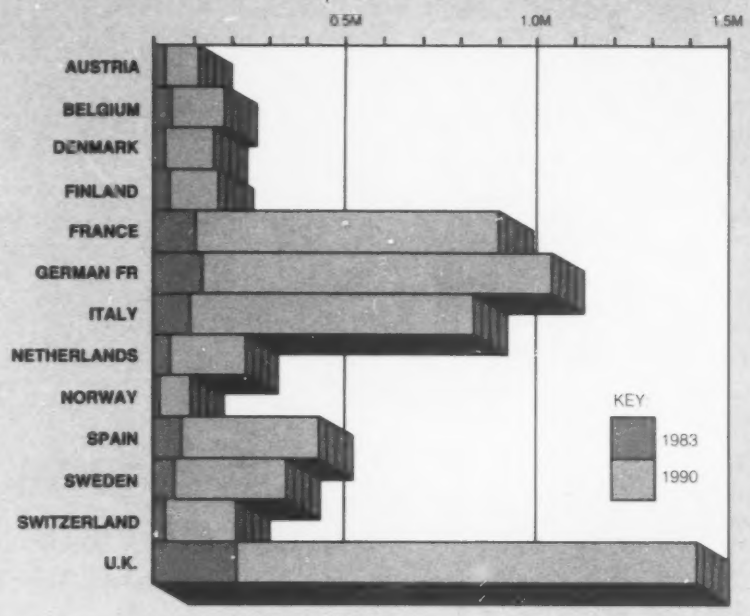
EUROPEAN BUSINESS MICRO SHIPMENTS*

SHIPMENTS IN UNITS	1984	1985	1986	1987	1988	1989
Benelux	40,162	52,363	66,913	82,930	100,168	118,568
France	79,013	103,205	132,535	165,148	200,566	238,747
Italy	74,285	96,364	127,262	161,399	198,055	237,081
Scandinavia	64,999	84,584	107,471	132,350	158,811	186,734
Spain	37,749	48,617	63,046	78,386	94,238	110,525
U.K.	136,012	176,162	217,237	258,770	302,409	347,938
W. Germany	93,878	122,514	154,987	191,484	230,608	272,081
Other	42,547	55,560	71,013	88,044	105,595	123,540
TOTAL	568,645	739,369	940,464	1,158,514	1,390,450	1,635,214
VALUE OF SHIPMENTS (IN $MILLION)						
TOTAL	2,564	3,491	4,535	5,414	6,673	8,179

*Basic system price $1,000 TO $15,000
Source: Logica Telematica Survey

FIG. 2

EUROPEAN INSTALLED BASE OF BUSINESS MICROS



SOURCE LOGICA TELEMATICA SURVEY

industrial giant Saint-Gobain, is "pirate users who come knocking on the dp department's door when they have problems."

The penalties for such independence can be severe, especially in companies with formalized corporate cultures. "A certain number of micros are not connected to our main systems and not approved by us," explains Elf Aquitaine's Nardon. "These machines exist where departments have made their own choice with their own money. When they come to us with their problems, we simply refuse to help them and let them stew in their own juice." It's clear from such comments that some European dp shops are simply not prepared to be user friendly to the in-house micro mavericks.

On the communications side, European users are currently testing the water. And they're at that tentative stage because of their general lack of experience in setting up networked applications for micros. The lack of effective software for linking micros to larger systems also hasn't helped.

Nevertheless, Logica found that around 19% of the micros installed in Europe last year did indeed have communications connections. Breaking this figure down further, Logica reported that 15% of these systems had some level of communications with mainframes or minicomputers, while the remaining 4% were hooked to other micros. Logica expects that by 1990, 75% of the business micros installed will have communications capacity.

Blair Mascall, a senior consultant with the informatics section of the Economist Intelligence Unit (EIU) in the U.K., points out that the organizational implications of hooking micros to mainframes can be desirable for large companies. "When micros were first sold in Europe, buying them was in many cases an individual decision. Users were able to break with the data processing department. The use of a micro-to-mainframe link reestablishes the relationship since that is a corporate decision." The micro-mainframe connection, therefore, represents a new method for Europe's cautious dp professionals to reassert their corporate-wide influence over all things technological.

Right now European users are just beginning to make those communications connections. Howard Sach is one dp manager who has begun operating a micro-to-mainframe link. Sach, who works for the Norwegian branch of the packaging firm Elopak, has hooked up two IBM PCs to his company's 4300 system. "We have a requirement for local processing—word processing, spreadsheets, and graphics—and we don't want managers with both a personal computer and a terminal on their desks, rekeying information into the PCs when it is already available on the mainframe. With the two PCs hooked to the 4300, we expect to get some real experience with such a link. It is expensive, particularly since we have a lot of software on the system that we are not using yet."

As users in large as well as small firms become more proficient in using micros, access to outside networks becomes increasingly tempting. The growing end-user demand for access to external databases, videotex services, and office networks such as teletex will make the need for communications facilities even more acute.

European suppliers and software houses are already picking up on this trend. A number of German companies, including Telematic and Mupid, are developing software to link pcs into the German Bildshirmtext videotex system. Meanwhile, in France, Goupil offers software to connect its pc with the French videotex service. In the U.K., there is the Micronet system that provides pc links to Prestel; Victor distributor ACT in the U.K. also has the Micromail package that connects pcs to British Telecom's Gold electronic mail service.

The need for more communications connections, coupled with the compatibility issue, helps explain why many large European users waited for IBM to enter the market before boarding the micro bandwagon. The IBM PC, in fact, stimulated the development of micro-to-mainframe software.

IBM, which is expected to be a leading supplier in the European micro market, hasn't made it to the top yet. Seventeen months after the European launch of the IBM PC, users still have not flocked to buy the machine, which is scoring big sales in the States. European sales in 1983 for the IBM PC range from an estimated 25,000 to 50,000 machines—a relatively poor showing for the world's number one dp company.

Despite media campaigns across Europe, IBM was forced to make savage cuts of up to 25% on its micro line in March. IBM U.K., for instance, dropped its basic PC price by 20%—which makes the machine 13% cheaper than in the U.S. These micro moves were designed to boost Big Blue's sales.

There are a number of factors behind IBM's slow start. For one thing, the company was a latecomer to a booming European microcomputer market that it indirectly helped to foster by hoisting its PC colors in the U.S. in 1981. During the period between introductions, IBM Europe was forced to go without a product while many business users—around 740,000 to be more exact—bought what they could get. The field was therefore left open to other American micro vendors and the increasing demand aided the growth of many European vendors and distributors.

NATIONAL MARKET DIVERSITY

Local European companies were also helped by the diversity of Europe's 17 national markets, which often require specially tailored approaches to marketing, software, and distribution. This gives start up companies a jump on larger firms. According to Logica, there are currently around 340 microcomputer suppliers in Europe, 119 of which are well established enough to have outlets in at least two European countries.

"Local language software will help increase the number of microcomputer users."

In the face of so much competition, IBM so far has managed to scrape together only 5% of the European business computer market. Big Blue's shipments, however, probably now account for around 10% of the total, Logica estimates. Meanwhile, Apple and Commodore are clinging to 20% of the market, while other suppliers are vying for the rest. U.S. vendors currently dominate 70% of the European market, except in Italy, where Olivetti is prominent. This leaves around 28% of the market for Europeans and 2% for the Japanese.

In the U.K., Europe's strongest microcomputer market, IBM is trying to catch up with its main competitor, ACT, an aggressive Victor distributor that also sells its own Apricot portable machine. Some estimates for last year put IBM sales at 800 units and ACT sales at 1,200. Considering Victor's financial troubles in the U.S. and IBM's growing European business, ACT's success is likely to be short-lived. Indeed, other estimates put IBM and ACT neck and neck in the British market.

Success in the U.K. market is no mean feat. Since the first computer store opened its doors in 1977, Britons have shelled out more for microcomputers than people in any other European country. Around 304,000 machines are now being used in businesses in the U.K., while a staggering 2 million homes boast cheaper domestic models.

EIU consultant Mascall explains that the U.K's responsiveness to micros "can simply be put down to the fact that Britain has more educated customers. The government has had a lot to do with increasing this awareness merely by standing up and saying that these machines are worthwhile and not just a fast American import."

The education of people outside the company environment has played an important role here. Some of that education begins in the schools; almost every U.K. school has a micro. The BBC, which has put together tv programs on micros, has also sponsored the development of its own micro for viewers. Of course the widespread success of Sinclair's range of low-cost home computers has done much to spark interest in the professional use of micros. Sinclair has now decided to tap a little of this interest himself and describes the new QL machine from Sinclair Research as a semi-professional system.

The result of this increased awareness can be seen at the business level, where U.K. users are becoming more demanding. This more aggressive attitude toward buying systems tends to favor manufacturers that have the resources and know-how to support their products in the long term. Teare of the Manchester center says that he is surprised by the number of would-be users who automatically reject the idea of buying systems from smaller companies. "We can recommend systems and find people will query them because they have heard of the problems of Victor and Apple. So they insist on IBM." That naturally augurs well for IBM PC sales in the U.K.

West Germany is also likely to produce big sales for Big Blue. The number of business microcomputers in Germany is expected to reach around 200,000 by the end of this year, according to Diebold Germany. It is a safe bet to say that IBM will have a significant proportion of that business.

The German buyer is traditionally more cautious than most other Europeans when considering something new. "Users want to know all about the machine, how it is going to help, and about the company behind it before agreeing to part with money," explains one American marketing manager. Also, many of the pcs in Germany will be ordered in quantities by companies hoping to plug the micro in as a multifunction workstation. So far, the only order of any size has come from industrial gas firm Agagas of Hamburg.

The IBM micro approach, which is serious and aimed at the networking niche, should go over big in Germany. The same networking tack is also being taken by two of Germany's main dp suppliers—Siemens and Nixdorf. Siemens offers its 16-bit pc mainly to its mainframe users, while Nixdorf plans to sell its machines as multifunction workstations that can be hooked onto its computer systems.

Germany is far from being a complete IBM devotee, however. The U.S. giant as a matter of fact has already suffered a major distribution setback in Deutschland. IBM had initially set up a deal with the Metro Group, a German wholesale chain headed by a former IBM Germany manager. Rumors suggest, however, that the Metro Group sold less than 1,000 units last year for IBM. The company then set up a PC arm, IBM Produktuertrieh GMbH, which started to attract dealers. Nevertheless, the 1983 PC sales targets had to be chopped from 16,000 to 10,000, and some sources say IBM Germany missed this.

GERMANS GO AFTER BIG BLUE

In addition to the distribution problems, IBM has also had to face stiff competition from such firms as Olympia, Triumph Adler, Computer Technic Muller (CTM), and Taylorix. One of the more promising German contenders had been David Computer, which failed last year because of a chip shortage. A buyer was soon on hand, however—Sweden's Ericsson snapped up the company, hoping to use it to obtain a marketing foothold in Germany.

In its home market, Ericsson is trying to make headway against both local and U.S. rivals. One strong local competitor is Luxor, better known for its tvs. The Swedish company was brought up last year by Finnish conglomerate and dp company Nokia. Also in the running in Scandinavia are Sweden's Gylling, which sells a Taiwanese Apple copy called Microprocessor II; Norway's Myeron, with an 8086-based machine; Denmark's Christian Rovsing; and Nor Sales, which made a fortune selling Osbornes in Norway after that company collapsed.

Depite all this local activity, Scandinavian buyers are still more attracted to U.S. micros. More so than the French, who bought around 25% of their micros last year from French companies such as SMT-Goupil and Bull-Micral, which now includes the old R2E company, Léanord, and Logabax.

Gordon Curran of Paris-based researchers Intelligent Electronics believes this 25% French share could simply be attributed to user chauvinism, since the products were not technically impressive. SMT-Goupil chairman Claude Perdrillat disagrees. "It is not necessarily an advantage to be French," he argues, "except when it comes to selling to the administration. There is still a lot of competition in the general business market."

That may be true on the hardware side, but when it comes to software the French users have a strong preference for local application systems. While this tendency may appear to be more marked in France, it also holds true for most European users.

U.S. operating systems travel well across the Atlantic, but application software, as Lotus found when it brought its 1-2-3 package to the European market, has to be tailored to suit national needs. European users feel that this is only reasonable because of the substantial fees they pay for some U.S. packages.

Over the past year there has been a significant increase in the number of microcomputer software houses setting up shop across the Continent. These companies are creating their own application products, as well as adapting U.S. packages for the local markets.

The growth of a local software industry in Europe is singled out by Logica researcher Steve Timms as one of the main factors determining the continued increase in microcomputer usage in the European business sector. "Local language software," he notes, "is going to be very significant in Europe. It is critical for the real growth of the market and will help substantially to increase the number of microcomputer users." ●

Also contributing to this article were James Etheridge, Peter Hidas, John Lamb, and Peter Wurr.